

35 U.S.C. §112 Rejection of Claims

In the Office Action, Claims 1-9 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Specifically, in Claim 1 the Examiner states that it is unclear what is meant by the spacer member being disposed independently of the shaft supporter and flange and that the spacer has an inclined surface. Applicant traverses the rejections as Applicant submits that the disposition of the spacer member is clear from the text and figures in the specification. Nevertheless, Applicant has amended Claim 1 to clarify any ambiguity that may exist.

Amended Claim 1 recites that the bearing unit is fixed on the base. The bearing unit includes a shaft supporter, a flange that is integral with the shaft supporter and a spacer. The spacer is disposed on the flange and has an inclined surface. The inclined surface of the spacer is inclined with respect to the upper surface of the base. Applicant has amended Claim 1 to no longer recite that the flange is disposed independently of the shaft supporter and flange. Applicant submits that it is clear from Claim 1 as well as shown in the embodiment of Figs. 2 and 4 and the accompanying text that the spacer (a separate layer from the flange) is disposed on the flange, which is on the base, and that at least one surface of the spacer is inclined with respect to a particular direction (as recited, the plane formed by the upper surface of the base). Applicant thus submits that amended Claim 1 overcomes the rejection.

Similarly, Claim 2 recites a rotational shaft and a bearing unit that includes a flange. The flange has a bottom surface perpendicular to an axis of the rotational shaft and an upper surface. The upper surface is inclined with respect to the bottom surface of the flange and is inclined to the upper surface of the base. A core unit is disposed on the inclined upper surface of the flange. Applicant submits that it is clear from Claim 2 as well as shown in the embodiment of Fig. 6 and the accompanying text that the flange, which is on the base, has at least one surface inclined with respect to the bottom surface of the flange and to the upper surface of the base. Applicant thus submits that Claim 2 overcomes the rejection.

35 U.S.C. §103 rejection of Claims

In the Office Action, Claims 1-3 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sakuragi (U.S. Patent 5,598,497) in view of Oku (U.S. Patent No 6,097,121), Claims 5 and 6 were as being unpatentable over Sakuragi in view of Oku in view of Matsushima (U.S. Patent No 6,427,485). The Examiner indicated that Claim 4 would be allowable if rewritten to overcome the §112 rejection. Applicant traverses the rejections.

Amended Claim 1, for example, recites that the motor device comprises a base and a bearing unit. The bearing unit is fixed on the base. The bearing unit includes a shaft supporter, a flange that is integral with the shaft supporter and a spacer. The spacer is disposed on the flange and has an inclined surface. The inclined surface of the spacer is inclined with respect to the upper surface of the base. One advantage of such an arrangement is that it permits the core unit to be supported on the bearing unit in an inclined manner, thereby suppressing decentering due to precession and avoiding tracking errors caused by the decentering. Another advantage of the arrangement of Claim 1 is that with conventional motor devices that use projections to support the core unit in an inclined fashion rather than an inclined surface, the coupling hole that receives the rotational shaft cannot be sized accurately. The reason for this is that during sizing, the upper surface of the flange is used as a reference. However, this surface is uneven due to the projections themselves. In addition, the addition of projections on the bearing unit creates a complex shape that increases the processing costs of the bearing unit and thus overall manufacturing cost.

a) The Examiner states that Sakuragi does not anticipate or suggest a bearing unit that has a flange with an inclined surface but that Oku discloses such a flange. However, neither Sakuragi nor Oku anticipate or suggest such a bearing unit. For example, neither Sakuragi nor Oku anticipate or suggest a bearing unit that includes a flange formed integrally with the shaft supporter that extends along the upper surface of the base. The Examiner specifically points to element 110 in Oku as a flange. However, element 110 is a tubular bearing support, not a flange (although it has a flange-like projection 112). Nor is the tubular bearing support (or flange-like projection)

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no structure

of Oku formed integrally with the shaft supporter. In addition, neither the tubular bearing support nor flange-like projection of Oku extends along the base.

b) Further, neither Sakuragi nor Oku anticipate or suggest a bearing unit that has a spacer disposed on the flange or that has an inclined surface that is inclined with respect to the upper surface of the base. Sakuragi discloses, for example, a spacer (12) disposed between bearings (7 and 8). This spacer is neither disposed on a flange nor has an inclined surface. Nor does Sakuragi anticipate or suggest specifically that the core unit is disposed on the inclined surface of the spacer. The Examiner states that Oku discloses a flange with an inclined surface. However, Oku neither anticipates nor suggests a spacer, a spacer disposed on a flange, or a spacer with an inclined surface (Claim 1 does not recite a flange with an inclined surface). The element 110 that the Examiner points to is not a spacer. Nor is element 110 inclined with respect to the upper surface of the base. As defined in Webster's Collegiate Dictionary (10th Edition) to be inclined is to make an oblique (non-perpendicular or parallel) angle with respect to a particular direction. Thus, an inclined plane makes an angle with respect to a particular plane that is neither perpendicular nor parallel to that particular plane. Element 110 is perpendicular with respect to the base, unlike the arrangement of amended Claim 1 that has a spacer with an inclined surface that is inclined with respect to the upper surface of the base.

c) In addition, neither Sakuragi nor Oku anticipate or suggest the core unit is disposed on the inclined surface of the spacer such that the core unit is supported by the inclined surface and is inclined with respect to the upper surface of the base.

d) Nor is there any motivation to combine the prior art of Sakuragi and Oku. Sakuragi is directed towards, for example, decreasing the amount of grease splashed as the RPM increases or decreasing noise produced by the coil from leaking into the read/write head. Oku, on the other hand is directed towards stabilizing vibration caused by tilt between the stator and the magnet. Thus, there is no motivation to combine in either prior art to combine the teachings of Sakuragi or Oku.

For at least these reasons, neither Sakuragi nor Oku, alone or in combination, anticipate or suggest the arrangement of amended Claim 1. Thus, amended Claim 1 and Claims 7 and 8 are patentable over the prior art cited by the Examiner.

For similar reasons, neither Sakuragi nor Oku, alone or in combination, anticipate or suggest the arrangement of Claims 2 or 3. For example, neither Sakuragi nor Oku anticipate or suggest a bearing unit that includes an individual flange that has an upper surface inclined with respect to the bottom surface and to the upper surface of the base or a core unit that is disposed on the inclined upper surface of the flange such that the core unit is supported and inclined with respect to an upper face of the base, as recited in Claim 2. Nor do Sakuragi or Oku anticipate or suggest a positioning member fixed on the base to position the core unit on the base and a supporting member formed integrally with the positioning member and extending along the upper surface of the base having an upper surface formed at a position higher than an upper surface of the flange with respect to the upper surface of the base, as recited in Claim 3. Further, neither Sakuragi nor Oku anticipate or suggest that the core unit is supported by the upper surface of the flange and the upper surface of the supporting member such that the core unit is inclined with respect to the upper surface of the base as recited in Claim 3.

As one even more specific example, none of the prior art cited by the Examiner disclose a positioning member such as that recited in Claim 3. The only positioning member the Examiner points to is element 3 in Matsushima. However, element 3 is a screw. This screw does not have a supporting member formed integrally with the positioning member. Nor does the screw have a supporting member that extends along the upper surface of the base. Further, the screw does not have an upper surface formed at a position higher than the upper surface of an existing flange with respect to the upper surface of the base.

For at least these reasons, Claims 2 and 3 and dependent Claims 4-6 and 9 are patentable over the prior art cited by the Examiner.

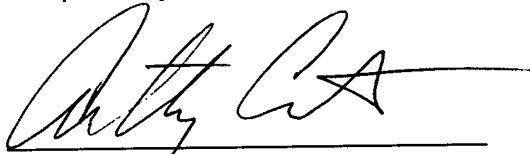
Similarly, Claim 6 was rejected over Sakuragi and Oku in view of Matsushima. Claim 6 recites, for example, that the positioning member is provided with a collar and this collar is restrained by the base. The Examiner states that the above screw 3 has a collar. Applicant submits that the screw has grooves. Applicant submits that these grooves are not a collar. For at least this reason, Applicant submits that Claim 6 is independently patentable over the prior art cited by the Examiner.

In addition, Applicant has amended Claims 7 and 8 to recite that the shaft supporter and the flange are formed from a die-cast zinc alloy or are formed from a sintered metallic powder. Applicant submits that amended Claims 7 and 8 recite different shaft supporters and flanges which have different characteristics and which further define these elements.

Conclusion

In view of the amendments above, Applicant respectfully submits that all of the pending claims are in condition for allowance and seeks an early allowance thereof. If for any reason the Examiner is unable to allow the application in the next Office Action and believes that a telephone interview would be helpful to resolve any remaining issues, he is respectfully requested to contact the undersigned attorneys.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Anthony P. Curtis', written over a horizontal line.

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APPENDIX A
Serial No. 10/038,072
MOTOR DEVICE WHEREIN ACCURATE SIZING IS POSSIBLE
Atsushi Masuda

In the Claims

Please amend Claims 1 and 7-8 as follows:

1. (Twice Amended) A motor device comprising:
 - a base;
 - a bearing unit fixed on the base;
 - a core unit including a plurality of cores which extend in a radial direction from the bearing unit along an upper surface of the base and coils provided around each of the plurality of cores, the core unit integrally forming the plurality of cores;
 - a rotational shaft having two ends, one end of the rotational shaft rotatably supported by the bearing unit;
 - a rotor fixed to the other end of the rotational shaft; and
 - a magnet fixed to the rotor and opposing the core unit,
 - wherein the bearing unit includes a shaft supporter having a cylindrical shape which rotatably supports the rotational shaft, a flange formed integrally with the shaft supporter, extending along the upper surface of the base, and having an approximately uniform thickness, and a spacer disposed on the flange ~~independently of the shaft supporter and of the flange~~ and having an inclined surface that is inclined with respect to the upper surface of the base, and
 - wherein the core unit is disposed on the inclined surface of the spacer, whereby the core unit is supported by the inclined surface such that the core unit is inclined with respect to the upper surface of the base.

7. (Amended) A motor device according to Claim 1, wherein the shaft supporter and the flange are ~~integrally formed of~~ from a die-cast zinc alloy ~~from a die-cast method~~.

8. (Amended) A motor device according to Claim 1, wherein the shaft supporter and the flange are integrally formed ~~of~~from a sintered metallic powder ~~from a sintering method~~.